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**BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

Application Number: 09/863,928
Filing Date: May 23, 2001
Appellant(s): WANG ET AL.

Allen E. Hoover
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 10 October 2007 appealing from the Office action mailed 5 April 2006.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

| | | |
|---|---|---|
| 4,076,846 | Nakatsuka et al. | 02-1978 |
| 5,455,342 | Redding, Jr. | 10-1995 |
| 5,849,233 | Altieri et al. | 12-1998 |
| 3,137,592 | Protzman et al. | 06-1964 |

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-6, 33-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakatsuka et al. (U.S. Patent 4,076,846), in view of Redding, Jr. (U.S. Patent 5,455,342),

further in view of Altieri (U.S. Patent 5,849,233). Regarding Claim 1, Nakatsuka et al., hereafter "Nakatsuka," show that it is known to carry out a method for preparing a cold water soluble extruded starch product that has a solubility of greater than 90% in water at 25C that is film forming in aqueous solution and that is gelatinized to a gelatinization level, said gelatinization level being at least 95% (Column 5, lines 33-52; Column 6, lines 21-24; Column 8, lines 31-33; Column 9, lines 4-5), the process comprising providing a hydroxyalkyl starch, said starch being derivatized with a hydroxyalkyl substituent having from 2 to 6 carbon atoms (Column 6, lines 60-62), said starch being a granular starch (Column 5, lines 33-51; Column 8, line 41); and extruding said starch in an extruder, said extruder having a barrel, a die, and at least one rotating shaft, said barrel having at least first and second zones, said first zone being upstream from said second zone, the conditions in the first zone being insufficient to gelatinize said starch to said gelatinization level and the conditions in said second zone being sufficient to gelatinize said starch to said gelatinization level, said starch being extruded in the presence of controlled moisture, said process including the step of controlling the rotational speed of said shaft to impart specific mechanical energy to said starch sufficient to result in a soluble extruded starch product that is capable of extrusion through said die at said rotational speed (Column 8, lines 9-17, 31-33, 49-53; Column 13, lines 31-40; Column 14, lines 5-12, 25-28; It is noted that gelatinization occurs about 150C-175C.). Nakatsuka does not specifically disclose the particle size of his common starch. Redding, Jr. shows that it is known to carry out a method of molding starches wherein the starches have a particle size distribution such that at least 90% by weight of the starch particles pass through an 80 mesh (180 micron) screen (Column 1, lines 19-23; It is being interpreted that since starch is "commonly found" at sizes from 5-25 microns, at least 90% by weight of starch would fall into the disclosed size of 5-25 microns.). Redding, Jr. and Nakatsuka are combinable because they are concerned with a similar technical field, namely, methods of molding starches. It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to identify the size disclosed in Redding, Jr. as that of Nakatsuka's "common" starches in order to design molding processes that would accommodate specifically-sized granules. Nakatsuka does not specifically show barrel moisture levels. Altieri shows that it is known to carry out a method wherein the moisture in the barrel does not exceed 25% by weight of said starch (Column 1, lines 56-58). Altieri and Nakatsuka are combinable because they are concerned with a similar technical field, namely, methods of molding starches. It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Altieri's specific barrel moisture teachings during Nakatsuka's molding process in order to most accurately form a product that accommodates exclusive end-use specifications.

Regarding Claim 2, Nakatsuka shows the process as claimed as discussed in the rejection of Claim 1 above, but he does not give barrel moisture levels. Altieri shows that it is known to carry out a method wherein the moisture in the barrel does not exceed 25% by weight of said starch (Column 1, lines 56-58). It is noted that a prior art reference that discloses a range encompassing a somewhat narrower claimed range is sufficient to establish a prima facie case of obviousness (MPEP 2144.05; *In re Peterson*, 315 F.3d 1325, 1330, 65 USPQ2d 1379, 1382-83 (Fed. Cir.2003). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to operate Nakatsuka's molding method under a somewhat narrower moisture range of less than 22.5% by weight of the starch, suggested by Altieri, in order to most accurately form a product that accommodates exclusive end-use specifications.

Regarding Claim 3, Nakatsuka shows the process as claimed as discussed in the rejection of Claim 1 above, but he does not give barrel moisture levels. Altieri shows that it is known to carry out a method wherein the moisture in the barrel does not exceed 25% by weight of said starch (Column 1, lines 56-58). It is noted that a prior art reference that discloses a range encompassing a somewhat narrower claimed range is sufficient to establish a prima facie case of obviousness (MPEP 2144.05; *In re Peterson*, 315 F.3d 1325, 1330, 65 USPQ2d 1379, 1382-83 (Fed. Cir.2003). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to operate Nakatsuka's molding method under a somewhat narrower moisture range of less than 20% by weight of the starch, suggested by Altieri, in order to most accurately form a product that accommodates exclusive end-use specifications.

Regarding Claim 4, Nakatsuka shows the process as claimed as discussed in the rejection of Claim 1 above, but he does not give barrel moisture levels. Altieri shows that it is known to carry out a method wherein the moisture in the barrel does not exceed 25% by weight of said starch (Column 1, lines 56-58). It is noted that a prior art reference that discloses a range encompassing a somewhat narrower claimed range is sufficient to establish a prima facie case of obviousness (MPEP 2144.05; *In re Peterson*, 315 F.3d 1325, 1330, 65 USPQ2d 1379, 1382-83 (Fed. Cir.2003). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to operate Nakatsuka's molding method under a somewhat narrower moisture range of less than 17.5% by weight of the starch, suggested by Altieri, in order to most accurately form a product that accommodates exclusive end-use specifications.

Regarding Claim 5, Nakatsuka shows the process as claimed as discussed in the rejection of Claim 1 above, including a method comprising the step of drying said extruded

starch product to a moisture content below about 15% to form a dried product (Column 14, lines 51-52), meeting applicant's claim.

Regarding Claim 6, Nakatsuka shows the process as claimed as discussed in the rejection of Claim 1 above, including a method method wherein said starch product is dried to a moisture content between about 9% and about 12% (Column 13, line 9), meeting applicant's claim.

Regarding Claim 33, Nakatsuka shows that it is known to carry out a method for preparing a coated food product (Column 11, lines 1-61), comprising providing a food substrate (Column 11, lines 31-61); providing a seasoning adherence solution (Column 11, lines 1-61); and applying said seasoning adherence solution to said food product in a manner effective to cause seasoning in said solution to adhere to said food substrate (Column 11, lines 1-61); said seasoning adherence solution having been prepared by mixing water, an extruded starch product, and a seasoning to form said solution (Column 11, lines 1-61), said product having been formed by the process comprising providing a hydroxyalkyl starch, said starch being derivatized with a hydroxyalkyl substituent having from 2 to 6 carbon atoms (Column 6, lines 60-62), said starch being a granular starch (Column 5, lines 33-51; Column 8, line 41); and extruding said starch in an extruder, said extruder having a barrel, a die, and at least one rotating shaft, said barrel having at least first and second zones, said first zone being upstream from said second zone, the conditions in the first zone being insufficient to gelatinize said starch to a gelatinization level of 95% and the conditions in said second zone being sufficient to gelatinize said starch to a gelatinization level of 95%, said starch being extruded in the presence of controlled moisture, said process including the step of controlling the rotational speed of said shaft to impart specific mechanical energy to said starch sufficient to result in a soluble extruded starch product that is capable of extrusion through said die at said rotational speed (Column 5, lines 33-52; Column 6, lines 21-24; Column 8, lines 9-17, 31-33, 49-53; Column 9, lines 4-5; Column 13, lines 31-40; Column 14, lines 5-12, 25-28; It is noted that gelatinization occurs about 150C-175C.). Nakatsuka does not specifically disclose the particle size of his common starch. Redding, Jr. shows that it is known to carry out a method of molding starches wherein the starches have a particle size distribution such that at least 90% by weight of the starch particles pass through an 80 mesh (180 micron) screen (Column 1, lines 19-23; It is being interpreted that since starch is "commonly found" at sizes from 5-25 microns, at least 90% by weight of starch would fall into the disclosed size of 5-25 microns.). Redding, Jr. and Nakatsuka are combinable because they are concerned with a similar technical field, namely, methods of molding starches. It would have been prima facie obvious

to one of ordinary skill in the art at the time the invention was made to identify the size disclosed in Redding, Jr. as that of Nakatsuka's "common" starches in order to design molding processes that would accommodate specifically-sized granules. Nakatsuka does not specifically show barrel moisture levels. Altieri shows that it is known to carry out a method wherein the moisture in the barrel does not exceed 25% by weight of said starch (Column 1, lines 56-58). Altieri and Nakatsuka are combinable because they are concerned with a similar technical field, namely, methods of molding starches. It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Altieri's specific barrel moisture teachings during Nakatsuka's molding process in order to most accurately form a product that accommodates exclusive end-use specifications.

Regarding Claim 34, Nakatsuka shows the process as claimed as discussed in the rejection of Claim 33 above, but he does not give barrel moisture levels. Altieri shows that it is known to carry out a method wherein the moisture in the barrel does not exceed 25% by weight of said starch (Column 1, lines 56-58). It is noted that a prior art reference that discloses a range encompassing a somewhat narrower claimed range is sufficient to establish a prima facie case of obviousness (MPEP 2144.05; *In re Peterson*, 315 F.3d 1325, 1330, 65 USPQ2d 1379, 1382-83 (Fed. Cir.2003). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to operate Nakatsuka's molding method under a somewhat narrower moisture range of less than 22.5% by weight of the starch, suggested by Altieri, in order to most accurately form a product that accommodates exclusive end-use specifications.

Regarding Claim 35, Nakatsuka shows the process as claimed as discussed in the rejection of Claim 33 above, but he does not give barrel moisture levels. Altieri shows that it is known to carry out a method wherein the moisture in the barrel does not exceed 25% by weight of said starch (Column 1, lines 56-58). It is noted that a prior art reference that discloses a range encompassing a somewhat narrower claimed range is sufficient to establish a prima facie case of obviousness (MPEP 2144.05; *In re Peterson*, 315 F.3d 1325, 1330, 65 USPQ2d 1379, 1382-83 (Fed. Cir.2003). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to operate Nakatsuka's molding method under a somewhat narrower moisture range of less than 20% by weight of the starch, suggested by Altieri, in order to most accurately form a product that accommodates exclusive end-use specifications.

Regarding Claim 36, Nakatsuka shows the process as claimed as discussed in the rejection of Claim 33 above, but he does not give barrel moisture levels. Altieri shows that it is known to carry out a method wherein the moisture in the barrel does not exceed 25% by

weight of said starch (Column 1, lines 56-58). It is noted that a prior art reference that discloses a range encompassing a somewhat narrower claimed range is sufficient to establish a prima facie case of obviousness (MPEP 2144.05; *In re Peterson*, 315 F.3d 1325, 1330, 65 USPQ2d 1379, 1382-83 (Fed. Cir.2003). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to operate Nakatsuka's molding method under a somewhat narrower moisture range of less than 17.5% by weight of the starch, suggested by Altieri, in order to most accurately form a product that accommodates exclusive end-use specifications.

Regarding Claim 37, Nakatsuka shows the process as claimed as discussed in the rejection of Claim 1 above, including a method wherein said starch has a solubility of at least 99% in water at 25C (Column 13, lines 19-21), meeting applicant's claim.

Regarding Claim 38, Nakatsuka shows the process as claimed as discussed in the rejection of Claim 33 above, including a method wherein said starch has a solubility of at least 99% in water at 25C (Column 13, lines 19-21), meeting applicant's claim.

Regarding Claim 39, Nakatsuka shows that it is known to carry out a method for preparing a cold water soluble extruded starch product that has a solubility of greater than 90% in water at 25C that is film forming in aqueous solution and that is gelatinized to a gelatinization level, said gelatinization level being at least 95% (Column 5, lines 33-52; Column 6, lines 21-24; Column 8, lines 31-33; Column 9, lines 4-5), the process comprising providing a hydroxyalkyl starch, said starch being derivatized with a hydroxyalkyl substituent having from 2 to 6 carbon atoms (Column 6, lines 60-62), said starch being a granular starch (Column 5, lines 33-51; Column 8, line 41); and extruding said starch in an extruder, said extruder having a barrel, a die, and at least one rotating shaft, said starch being extruded in the presence of controlled mosisture, said process including the step of controlling the rotational speed of said shaft to impart specific mechanical energy to said starch sufficient to result in a soluble extruded starch product that is capable of extrusion through said die at said rotational speed (Column 8, lines 9-17, 31-33, 49-53; Column 13, lines 31-40; Column 14, lines 5-12, 25-28). Nakatsuka does not specifically disclose the particle size of his common starch. Redding, Jr. shows that it is known to carry out a method of molding starches wherein the starches have a particle size distribution such that at least 90% by weight of the starch particles pass through an 80 mesh (180 micron) screen (Column 1, lines 19-23; It is being interpreted that since starch is "commonly found" at sizes from 5-25 microns, at least 90% by weight of starch would fall into the disclosed size of 5-25 microns.). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to identify the size disclosed in

Redding, Jr. as that of Nakatsuka's "common" starches in order to design molding processes that would accommodate specifically-sized granules.

Regarding Claim 40, Nakatsuka shows the process as claimed as discussed in the rejection of Claim 39 above, including a method wherein said barrel has at least first and second zones, said first zone being upstream from said second zone, the conditions in the first zone being insufficient to gelatinize said starch to said gelatinization level and the conditions in said second zone being sufficient to gelatinize said starch to said gelatinization level (Column 8, lines 9-17, 31-33, 49-53; Column 13, lines 31-40; Column 14, lines 5-12, 25-28; It is noted that gelatinization occurs about 150C-175C.), meeting applicant's claim.

Regarding Claims 41-43, Nakatsuka shows the process as claimed as discussed in the rejection of Claims 1, 3, and 39, respectively, including a method wherein said hydroxyalkyl starch comprises a hydroxypropyl starch (Column 6, lines 60-62), meeting applicant's claim.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakatsuka, Redding, Jr., and Altieri, further in view of Protzman et al. (U.S. Patent 3,137,592). Nakatsuka shows the process as claimed as discussed in the rejection of Claim 6 above, but he does not show grinding. Protzman shows that it is known to carry out a method further comprising the step of grinding said dried product (Column 12, lines 68-70). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to include Protzman's grinding step in Nakatsuka's general molding process in order to prepare the molded product for subsequent uses which require ground items.

**(10) Response to Argument**

Appellant contends that Nakatsuka does not suggest the instant invention because he cannot be relied on for any teaching of a starch product resulting from extrusion. This is not persuasive because it is maintained that Nakatsuka does teach a starch. It is firstly noted that the *title* of Nakatsuka is "Protein-*Starch* Binary Molding Composition..." (emphasis added) which indicates that the molding composition is at least partly starch. The abstract goes on to describe "an edible, water-soluble, thermoplastic molding composition comprising a *starch* material, a neutral inorganic alkali salt of protein material, water, an edible plasticizer, an edible lubricant, and other additives", clearly indicating that the extruded composition is starch. Applicant contends that Nakatsuka does not state that starch alone is extruded, however this is not claimed.

Appellant contends that Nakatsuka does not suggest the instant invention because his Table (II) does not exclusively note that the solubility times are at 100% solubility. This is not

persuasive because it is maintained that this data is the time it takes for the extruded product to be "water soluble" at the particular temperatures. Although there is no percentage attached to "water soluble" in the table (e.g. 90%, 100%), it is immediately envisaged that the "water soluble" refers to 100%. Applicant's references to a line 53 and column 10, lines 37-56 are immaterial relevant to the data in Table 2.

Appellant contends that Nakatsuka does not suggest the instant invention because he does not specifically disclose that his extruder has a zone where gelatinization is prevented and a subsequent zone where gelatinzation occurs (due to temperatures in each zone). This is not persuasive because Nakatsuka clearly shows an extruder having varying temperature zones (Column 13, lines 33-37). Appellant questions the Examiner's note that "gelatinization occurs at about 150-175". Although the specific gelatinization temperature for Nakatsuka's particular starch material is not known, it is known that gelatinization temperatures of starches such as are used in Nakatsuka range from 150C-175C and that gelatinization temperatures of starches in general range from about 70C-200C. Therefore, although the specific gelatinization temperature of Nakatsuka's specific starch is not necessarily known, it is nevertheless maintained that Nakatsuka's extruder contains a first zone upstream of a second zone, wherein the first zone does not allow gelatinization (30C-50C), wherein a second zone allows gelatinization (120C-200C). It is noted that although Nakatsuka's extruder has 3 zones, whereas the instant claim only has 2 zones, 3 zones are not precluded.

Appellant contends that Nakatsuka and Altieri are not properly combinable because Altieri teaches using larger starch particles than Nakatsuka. This is not persuasive because Altieri was cited to show use of a particular moisture content within the barrel, not particle size. It is maintained that although Altieri may use a starch having different particle size, his teachings regarding barrel moisture would be reasonably applied to other starch-extrusion processes independent of the other particle size usages.

Appellant contends that Nakatsuka and Redding, Jr. are not properly combinable because Redding, Jr. uses an unmodified starch. This is not persuasive because Redding, Jr. was cited to show an optimal particle size for starches in extrusion, not starch modification (or lack thereof). It is maintained that although Redding, Jr. may prefer to use unmodified starches in his extrusion process, his teachings regarding starch particle size would be reasonably applied to other starch-extrusion processes independent of starch modification properties of other processes.

Regarding Claim 33, appellant contends that Nakatsuka does not show extruding a seasoning adherence solution. This is not persuasive because Nakatsuka specifically describes that his extruded starch product can be "integrated into the product" (Column 11, line 46-47),

indicating that the extruded starch can be adhered to food. Further, the solution is useful with food products involving seasons such as salt, margarine, or general "flavoring" (Column 11, lines 34-35). Although Nakatsuka discloses that his extruded starch material can be used for packaging, this use does not preclude the packaging as a seasoning adherence solution when it is integrated into the product.

With respect to Ground II, appellant contends that this ground is not proper for the same reasons as Ground I. These reasons are not persuasive as discussed above.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Monica A Huson/

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